IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 1, 9, 10, 15 and 19 and AMEND claims 2, 4, 5, 7, 8, 11, 13, 16, 17 and 18 in accordance with the following:

1. (Cancelled)

2. (Currently amended) The polarization mode dispersion compensator according to claim ~~1~~9~~1~~11, wherein

the control unit obtains the degree of polarization from each of the plurality of feedback signals, compares a difference between a maximum and a minimum of the obtained degree of polarization with a threshold value, and increases the amount of change when the difference is greater than the threshold value.

3. (Previously Presented) The polarization mode dispersion compensator according to claim 2, wherein

the control unit obtains the degree of polarization from a current feedback signal, compares the obtained degree of polarization with the maximum and the minimum of degree of polarization, and decreases the amount of change when the obtained degree of polarization is smaller than the maximum and greater than the minimum and the difference is smaller than the threshold value.

4. (Currently Amended) The polarization mode dispersion compensator according to claim ~~1~~9~~1~~11, 2, or 3, wherein the control unit marks change of the control signal leading to a worse compensation performance and skips a control step with the marked change in one or more of succeeding feedback loops.

5. (Currently Amended) The polarization mode dispersion compensator according to claim ~~1~~9~~1~~11, 2, or 3, wherein the polarization controller includes birefringent elements controllable as a concatenation of one or more rotatable waveplates each of which is with a fixed amount of

retardance.

6. (Previously Presented) The polarization mode dispersion compensator according to claim 5, wherein the birefringent elements are realized by multiple three-electrode sections on a $LiNbO_3$ substrate, each of which operates as a rotatable waveplate controlled by voltages applied to electrodes.

7. (Currently Amended) The polarization mode dispersion compensator according to claim ~~1~~0~~9~~11, 2, or 3, wherein the polarization controller includes birefringent elements controllable as a concatenation of one or more rotatable waveplates whereby an amount of retardance is adjustable.

8. (Currently Amended) The polarization mode dispersion compensator according to claim ~~1~~0~~9~~11, 2, or 3, wherein:

the polarization controller includes birefringent elements controllable as a concatenation of one or more rotatable waveplates; and

the control unit marks a rotation direction of one of the waveplates leading to a worse compensation performance and skips a control step with change of a control signal for the marked direction in one or more of succeeding feedback loops.

9. (Cancelled)

10. (Cancelled)

11. (Currently Amended) ~~The~~ A polarization mode dispersion compensator ~~according to claim 10,~~comprising:

a polarization controller rotating a polarization angle of an input optical signal and outputting polarization controlled light;

a polarization mode dispersion (PMD) compensating device compensating a polarization mode dispersion of the polarization controlled light and outputting a PMD compensated light;

a signal quality monitor measuring a degree of polarization (DOP) of the PMD compensated light and generating a feedback signal indicating the measured DOP of the PMD compensated light; and

a control unit controlling the polarization controller and PMD compensating device based on the measured DOP,

wherein the control unit determines an amount of change of a control signal applied to the polarization controller for a feedback loop, by evaluating a DOP in response to the control signal using a plurality of feedback signals generated in the past feedback loops, changes the control signal by the determined amount, applies a changed control signal to the polarization controller,

the compensating device is an optical element with a variable and adjustable amount of differential group delay, and

the control unit determines an amount of change of the differential group delay for each feedback loop by evaluating a past trend of changes of the differential group delay of the compensating device.

12. (Original) The polarization mode dispersion compensator according to claim 11, wherein the control unit checks whether the differential group delay shows one of a continuous decrease and increase, and increases the amount of change of the differential group delay when the differential group delay shows the one of the continuous decrease and increase.

13. (Currently Amended) The polarization mode dispersion compensator according to claim ~~10~~11, 2, or 3, wherein:

the signal quality monitor includes a polarimeter which measures components of a Stokes vector and generates a feedback signal indicating the components of the Stokes vector; and

the control unit obtains the degree of polarization using the components of the Stokes vector.

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) ~~The~~ A polarization mode dispersion compensating method ~~according to claim 15~~comprising:

rotating a polarization angle of an input optical signal and outputting polarization controlled light through a polarization controller;

compensating a polarization mode dispersion of the polarization controlled light and outputting a polarization mode dispersion (PMD) compensated light through a PMD compensating device;

measuring a degree of polarization (DOP) of the PMD compensated light and generating a feedback signal indicating the measured DOP of the PMD compensated light; and

controlling the polarization controller and PMD compensating device based on the measured DOP,

wherein the controlling determines an amount of change of a control signal applied to the polarization controller for a feedback loop, by evaluating a DOP in response to the control signal using a plurality of feedback signals generated in past feedback loops, changes the control signal by the determined amount, and applies a changed control signal to the polarization controller,

wherein the ~~determining~~ controlling compares a difference between a maximum and a minimum of the degree of polarization obtained from the respective feedback signals, with a threshold value, and increases the amount of change when the difference is greater than the threshold value.

17. (Currently Amended) The polarization mode dispersion compensating method according to claim 16, wherein the ~~determining~~ controlling obtains the degree of polarization from a current feedback signal, compares the obtained degree of polarization with the maximum and the minimum of the degree of polarization, and decreases the amount of change when the obtained degree of polarization is smaller than the maximum and greater than the minimum and the difference is smaller than the threshold value.

18. (Currently Amended) The polarization mode dispersion compensating method according to claim ~~15,~~ 16~~,~~ or 17, further comprising:

marking change of the control signal leading to a worse compensation performance; and

skipping a control step with the marked change in one or more of succeeding feedback loops.

19. (Cancelled)